(b) applying a silane solution to said metal surface, said silane solution having at least one vinyl silane and at least one bis-silyl aminosilane, wherein said at least one vinyl silane and said at least one bis-silyl aminosilane have been at least partially hydrolyzed, and wherein the bis-silyl aminosilane comprises:

wherein:

-each R<sup>6</sup> is individually chosen from the group consisting of: hydrogen and C<sub>1</sub>-C<sub>24</sub> alkyl;
- each R<sup>3</sup> is individually chosen from the group consisting of: substituted aliphatic groups,
unsubstituted aliphatic groups, substituted aromatic groups, and unsubstituted aromatic
groups; and

-X2 is either:

$$\mathbb{R}^4$$
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 
 $\mathbb{R}^4$ 

-wherein each R4 is hydrogen; and

-R<sup>5</sup> is chosen from the groups consisting of: substituted and unsubstituted aliphatic groups, and substituted and unsubstituted aromatic groups.

- Q. (Amended) The method of claim 1, wherein each R is individually chosen from the group consisting of: hydrogen, ethyl, methyl, propyl, iso-propyl, butyl, iso-butyl, secbutyl and ter-butyl.